

**CLAIMS**

What is claimed is:

1. A portable x-ray device, comprising:

5 an x-ray source; and

an integrated power system;

wherein the x-ray device has a high current load.

2. The device of claim 1, wherein power system comprises a plurality of low voltage power supplies.

10 3. The device of claim 1, wherein each power supply provides a power ranging from about 20 to about 50 kV.

4. The device of claim 2, wherein the power system provides a continuous high voltage DC power.

5. The device of claim 1, further comprises an integrated display means.

15 6. The device of claim 1, wherein the x-ray source is shielded with a low-density insulating material.

7. The device of claim 6, wherein the low-density insulating material comprises silicone or epoxy.

8. The device in claim 6, wherein the shielding further comprises a high-Z substance.

20 9. The device in claim 8, wherein the high-Z substance is compounds of Pb, W, Ta, Bi, Ba, or combinations thereof.

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10. A handheld x-ray device, comprising:

an x-ray source shielded with a low-density insulating material; and

an integrated power system;

wherein the x-ray device has a high current load for radiographic imaging.

5           11. The device of claim 10, wherein the power system comprises a plurality of low voltage power supplies with each power supply providing a power ranging from about 20 to about 50 kV

12. The device of claim 10, wherein the low-density insulating material comprises silicone or epoxy.

10           13. The device in claim 12, wherein the shielding further comprises a high-Z substance like compounds of Pb, W, Ta, Bi, Ba, or combinations thereof.

14. A system for x-ray analysis, the system containing a portable x-ray device with a high current load and containing an x-ray source and an integrated power system.

15           15. The system of claim 14, wherein the power system comprises a plurality of low voltage power supplies with each power supply providing a power ranging from about 20 to about 50 kV.

16. The system of claim 14, wherein x-ray source is shielded with a low-density insulating material containing a high-Z substance.

20           17. A method for making a portable x-ray device with a high current load, the method comprising:

providing an x-ray source; and

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providing an integrated power system.

18. The method of claim 17, including:

providing the power system with a plurality of low voltage power supplies with each power supply providing a power ranging from about 20 to about 50 kV; and

5 providing the x-ray source with a shielding comprising a low-density insulating material containing a high-Z substance.

19. A method for analysis, comprising:

providing a portable x-ray device with a high current load and containing an x-ray source and an integrated power system; and

10 actuating the x-ray source using the integrated power system.

20. The method of claim 19, including:

providing the power system with a plurality of low voltage power supplies with each power supply providing a power ranging from about 20 to about 50 kV; and

15 providing the x-ray source with a shielding comprising a low-density insulating material containing a high-Z substance.

21. A method for dental imaging, comprising:

providing a portable x-ray device with a high current load for radiographic imaging, the device containing an x-ray source and an integrated power system; and

20 actuating the x-ray source using the integrated power system so that x-rays impinge in the teeth of a patient.

22. The method of claim 21, including:

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providing the power system with a plurality of low voltage power supplies with each power supply providing a power ranging from about 20 to about 50 kV; and

providing the x-ray source with a shielding comprising a low-density insulating material containing a high-Z substance.

5        23. A portable x-ray camera, comprising:

an x-ray source; and

an integrated power system;

wherein the x-ray device has a high current load for radiographic imaging.

24. The device of claim 23, wherein the power system contains a plurality of low voltage  
10 power supplies with each power supply providing a power ranging from about 20 to about 50 kV, and the x-ray source contains a shielding comprising a low-density insulating material containing a high-Z substance.